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THESIS

HOW SOCIAL MEDIA AFFECTS THE DYNAMICS OF PROTEST

by

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**HOW SOCIAL MEDIA AFFECTS THE DYNAMICS
OF PROTEST**

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Submitted in partial fulfillment of the
requirements for the degree of

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ABSTRACT

Digital technologies have created a new environment in the virtual world, which may either reinforce or undermine state authority. The wave of protests that erupted in the North African region during the last decade has increased the interest of scholars in investigating the catalysts for these uprisings. While there are conflicting views about the role of new technology in social protest, the Arab Spring has highlighted the role played by social media as a key tool in garner mass mobilization. However, a number of other factors could have been involved in the Arab uprisings. Thus, focusing only on one particular cause may lead to incorrect conclusions. Using cross-sectional-time series data, and multivariate regression, this thesis seeks to demonstrate that the Internet has a direct relationship with the onset of civil protests in Africa when certain economic conditions exist.

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I. INTRODUCTION

Internet usage has exploded over the past decade, transforming the global political and economic environment. Distance is no more a barrier to reaching isolated corners of the globe. Mobile devices allow individuals to view current events, interact, and spread news faster to other networks. Real-time images of oppressive government activities and violation of human rights can now be instantly viewed by the world. Broader audiences can now be reached at greater speed and relatively low cost, bridging new ideas, people and organizations, states, and social movements. At the same time, covert and illegal activities operating in the virtual space have also proliferated with these new technologies. The rise of Internet activities and penetration has multiplied social movement activities online.

Activists and organizers of all stripes have been increasingly using such communication tools to spread information, and the ICT revolution has drastically changed the operating modes of social movements. The development of the Internet has permitted activists to move from the traditional mode of disseminating information to new forms of communication that prompt instantaneous participatory dialogue. Seth Kreimer argues that the presence of social movements has multiplied on the Internet, which allows them to present huge volumes of information that would not have been possible with traditional media outlets.¹ Furthermore, the web allows activists to mobilize sympathizers and members to participate in their causes. Using Internet resources, movement organizers are able to reach larger crowds at relatively high speed through applications that generate bulk messages and sent them automatically to interested viewers who share the same concern.²

The Internet also has significantly increased the potential for social movement organizations to become more autonomous and influential. The emergence of interactive social media such as Facebook and Twitter allows users to generate and exchange

1. Seth F. Kreimer, "Technologies of Protest: Insurgent Social Movements and the First Amendment in the Era of the Internet," *University of Pennsylvania Law Review* 150, no. 1(2001): 126.

2. *Ibid.*, 134.

content, which ultimately strengthens the ties between social networks and enhances mobility, thus enabling “instant modes of mediated exchange.”³ Stephanie Alice Baker referred to this social phenomenon as the “mediated crowd” and argues that “the mediated crowd pertains to collective action that emerges in the virtual space (and geographic) arena as opposed to traditional crowd, which is typically limited to physical congregation in a shared geographical location.”⁴

In social protests, collective action has always been the key determinant for the success of a movement, and social media may play a key role in mitigating in-group coordination and interaction problems. While governments have always struggled to control or influence media outlets, they have even greater difficulty controlling the virtual space and oppressive regimes during period of unrest often shut down access to the Internet in order to block social media activity.

In recent decades, social protests have erupted in rich as well as poor countries. In the post-colonial era and with the end of the Cold War, the number of politically motivated social protests has dramatically increased. In Africa, bad governance, a weak economy, and fragile social structures have contributed to ongoing violence and social upheaval. Civil war is still raging and destroying the very fabric of society, and increasing distrust among the communities in many parts of Africa. Civil unrest has been a prominent feature of African society, and the wave of civil disorder occurring in many parts of the globe has exacerbated the situation in Africa.⁵ According to recent research new communication technology has boosted the economy in Africa but it has also contributed to more collective violence. In a 2013 study, Jan H. Pierskalla and Florian M. Hollenbach showed that the increase in cell phone technology can help rebel groups to

3. Stephanie Alice Baker, “From the Criminal Crowd to the “Mediated Crowd”: The Impact of Social Media on the 2011 English Riots,” *Safer Communities* 11, no. 1 (2012): 44.

4. Ibid., 44

5. Michael Bratton and Nicolas Van de Walle, “Popular Protest and Political Reform in Africa,” *Comparative Politics* 24, no. 4 (1992): 419.

overcome collective action problems, which has a positive effect on the probability of conflict occurrence.⁶

The fight for freedom and democracy has been a consistent feature of African politics, in countries long ruled by tyrannical leaders. The Afrobarometer public opinion survey shows that the majority of Africans want democracy instead of one-party rule.⁷ Contrastingly, over the decades, there have been few indicators showing that most African countries are moving toward more democratic regimes. Authoritarian leaders backed by their militaries constantly attempt to inhibit any opposing force threatening their monopoly on power. At the same time, we see a number of examples in which regime change appear to have been forced due to the pressure of social protest, including the Philippines in 2001, Ukraine during the Orange Revolution, and Egypt and Tunisia during the Arab Spring.

It is also important to remember that social protest has a prolonged effect on the economy. The Arab Spring cost approximately 100 billion dollars in loss of exports and imports, and caused the deadlock of many economic activities.⁸ During the London riots in 2011, insurance companies suffered over 200 million dollars in losses resulting from looting and damage. Social protests are complex events, involving mass action that seems to be coordinated within the crowds. Law enforcement agencies face enormous difficulties when attempting to quell violent social protests through brute force and lethal strategies. It becomes colossally difficult for police to contain and control the crowds when social protests involve over hundreds of thousands of people. Consequently, it is vital to understand how crowds are pulled together and what mechanism they use during political upheavals and mass social protests. Thus, this research will contribute to a better understanding of how increased Internet penetration in a country has an effect on the frequency of social protests.

6. Jan H. Pierskalla and Florian M. Hollenbach, "Technology and Collective Action: The Effect of Cell Phone Coverage on Political Violence in Africa," *American Political Science Review* 107, no. 2 (2013): 220.

7. Michael Bratton and Richard Houessou, "Demand for Democracy is Rising in Africa, but most Political Leaders Fail to Deliver," Afrobarometer 11 (2014): 6.

8. Sonia Farid, "Arab Spring Losses Reach 100 Billion Dollars," *Alarabiya News* Dec 14, 2011. <http://english.alarabiya.net/articles/2011/12/14/182585.html>.

Contemporary studies have generally focused on only one case study at a time when trying to understand the role of social media during social protests. For instance, Sean Aday, Henry Farell, Marc Lynch, John Sides, and Deen Freelon found that, during the Arab Spring, new media did not play a direct role in the protest but rather more had an informative role in spreading news outside the region.⁹ By contrast, Philip Howard and Muzammil Hussain argue that digital media changed the tactics of demonstration movements and that social media played a direct role in the Arab Spring.¹⁰ In this thesis, I will argue that in order to resolve this debate, it is important to look at numerous cases over a broad period of time and wide geographic space. This thesis will look at a broad sample of countries in Africa and to assess how increased Internet penetration has affected the frequency of social protest.

The number of Internet users is ever increasing, and new users join social media platforms every second. The social network that exists in the virtual world is a strong force that can shape political actions. Social media has become a vehicle to organize social protest; more and more activists and social movement organizations use web pages and social media to achieve their objectives. Therefore, it is imperative to study the relationship between increased Internet penetration and social protests in Africa.

The purpose of this thesis is to answer the research question: how do the prevalence social media technologies affect the dynamics of social protest in Africa? Drawing on data from African countries from 1992 to 2012, I estimate the effects of increased Internet penetration on social protests. My hypothesis theorizes that a higher level of Internet penetration over time tends to increase the frequency of social protests.

The methodology that I will employ to investigate this hypothesis is a mix of theoretical and empirical analysis. The theoretical aspect explores the body of literature on the role of social media in social protest. While the recent Arab uprisings have highlighted the importance of communication technologies, there still exist conflicting

⁹. Sean Aday et al., “New Media and Conflict After the Arab Spring,” *Washington, DC: United States Institute of Peace* (2012): 21.

¹⁰. Philip N. Howard and Muzammil M. Hussain, “The Role of Digital Media,” *Journal of Democracy* 22, no. 3 (2011): 48.

views on the role of social media in social protest. The empirical analysis, which is the focal point of this thesis, involves collection, interpretation, and evaluation of data that measure the proportionate increase in Internet penetration across 24 African countries. Using this percentage as the independent variable and the frequency of social protest as the dependent variable, a regression analysis will be run to determine whether a significant relation exists between these factors, while controlling for a number of potential confounding factors. The goal of this thesis is to show policy makers how expansion of the Internet in a country can accentuate the potential for increased social conflict.

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II. LITERATURE REVIEW

The Internet has revamped politics and media-related industries, and the whole world's activities now are highly dependent on digital traffic. Scholars of economics argue that this new technology has had beneficial effects on the economy. In contrast, many criminal organizations have also modernized their operational strategies through the Internet. For instance, Wong and Brown classify actors that used Internet for criminal activities as “e-bandits” defying the law and regulations of the state.¹¹ Additionally, technology has retooled the way protest movements are organized. Traditional methods of using placards and leaflets can cause considerable coordination problems, whereas the new platforms publicize activities in a better way, and at the same time, can preserve anonymity.

Social protest may be an indication that the people are not satisfied with the ruling regime. Expressing their discontent, the governed can mobilize huge crowds to protest against the governing class. During the Arab Spring millions of Tunisians and Egyptians poured into the streets and peacefully demanded change.¹² However, it is important to remember that protest also requires a whole range of organizational structure, planning, resources, and strategies to pull huge crowds together to start an uprising.

Many scholars have studied social protests from different angles. Some are interested in law enforcement responses to social protest, while others look at the dynamics of the crowds and the roles of social media in protests. This literature review examines the scholarly contributions concerning the role of social media in protest. There are two poles to the debate. Cyber ‘skeptics’ argue that social media assists only to share information in organizing and coordinating aspects of social protests. In contrast, cyber ‘enthusiasts’ argue that social media has a direct role in magnifying the size of the crowds in social protests. This review has three parts. The first part explains the building blocks of social media. The second part examines the different debates about the role of

11. Wendy H. Wong and Peter A. Brown, “E-Bandits in Global Activism: WikiLeaks, Anonymous, and the Politics of no One,” *Perspectives on Politics* 11, no. 4 (2013): 1016.

12. Aday et al., “New Media and Conflict After the Arab Spring,” 3.

social media in protests. Finally, it concludes by exploring the theoretical frameworks supporting this research.

A. COMPONENTS OF SOCIAL MEDIA

Andreas Kaplan and Michael Haenlein define social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user generated content.”¹³ Individuals are now socialized in the digital world by sharing information between families, friends, and acquaintances. Over time they build a social network. Users are connected through numerous platforms, such as Facebook, My Space, YouTube, and now Twitter, to spread news, and buy new products online. In fact, Teresa Correa, Amber Hinsley, and Homero Gil de Zuniga find that more than 75 percent of adults and over 93 percent of teenagers use the Internet as a social networking tool.¹⁴

Microblogging is a new form of Internet-based application, which allows users to exchange small elements, such as short sentences, real-time video images, and video links. Andreas Kaplan and Michael Haenlein argue that “Twitter is undoubtedly the most popular member of a larger group of Internet-based applications called micro-blogs.”¹⁵ Such tools allow rapid information flows between the users. In his doctoral dissertation, Cameron Alexander Marlow shows how information is spread among friends, families, and acquaintances within a network, similar to the propagation of a disease that is spread in society, which he terms a “media contagion,” and the diffusion of information flows within a network and between networks in a social space.¹⁶ Additionally, Haewoon Kwak, Changhyun Lee, Hosung Park, and Sue Moon found that the recipients of the tweets are likely to spread the information by “retweeting” to other audiences. The

13. Andreas M. Kaplan and Michael Haenlein, “Users of the World, Unite! the Challenges and Opportunities of Social Media,” *Business Horizons* 53, no. 1 (2010): 61.

14. Teresa Correa, Amber Willard Hinsley and Homero Gil De Zuniga, “Who Interacts on the Web?:The Intersection of Users’ Personality and Social Media Use,” *Computers in Human Behavior* 26, no. 2 (2010): 1.

15. Andreas M. Kaplan and Michael Haenlein, “The Early Bird Catches the News: Nine Things You should Know about Micro-Blogging,” *Business Horizons* 54, no. 2 (2011): 106.

16. Cameron Alexander Marlow, *The Structural Determinants of Media Contagion*. (Dissertation, Massachusetts Institute of Technology, 2005), 16.

authors argue that “retweet[ing] is an effective means to relay the information beyond adjacent neighbors.”¹⁷ If thousands of users are spreading news about social protest in a particular area, Twitter can highlight the news through the trending topics thereby it amplifying the spread of information to all users.¹⁸ It is for this reason, that firms and businesses increasingly recognize social media as an important tool that can influence opinions. As Jan Kietzman, Kristopher Hermkens, Ian McCarthy, and Bruno Silvestre demonstrate, it is essential for firms and managers to understand the functional blocks of social media in order to be able to monitor a firm’s reputation, the quality of service provided, and get feedback about products.¹⁹

In similar ways, the Internet provides overwhelming advantages to social movement organizations for inviting crowds to participate in protests, rallies, and peaceful marches. Traditional means of spreading information for a gathering, such as local networks, flyers, or word of mouth, are slow and inefficient. In contrast, social media and Internet technologies allow users and activists to communicate, coordinate, and share information at relatively low costs even within larger crowds.²⁰ For instance, Jenifer Earl and Katrina Kimport demonstrate how United for Peace and Justice used the Internet to gather over 400,000 people for a rally and march against the war in Iraq in January 2007.²¹ It thus seems that when activists leverage the benefits of the Internet effectively, they may be able to gather crowds more easily.

B. VIEWS ON THE ROLE OF SOCIAL MEDIA IN CIVIL DISOBEDIENCE

Sometimes, it is difficult to assess the success or failure of social protests and their relationship with social media, and many scholars have argued that these platforms cannot be used to start a revolution. For instance, Juan Raul Escobar demonstrates in a

17. Haewoon Kwak et al., “What is Twitter, a Social Network Or a News Media?” in Proceedings of the 19th International Conference on World Wide Web, ed. ACMACM, 2010): 598.

18. Ibid., 597.

19. Jan H. Kietzmann et al., “Social Media? Get Serious! Understanding the Functional Building Blocks of Social Media,” *Business Horizons* 54, no. 3 (2011): 250.

20. Jennifer Earl and Katrina Kimport, *Digitally Enabled Social Change: Activism in the Internet Age* (Mit Press, 2011): 10.

21. Ibid., 3.

study on Colombia that Twitter was not effective for promoting revolution, as it was difficult to build a network therein and coordinate action. However, because his study focuses primarily on Colombia, its results may be difficult to generalize in regard other places. In Colombia, Internet penetration is very low and only 12 percent of the population had access to the Internet in 2011.²²

Along similar lines, Jon B. Alterman argues that social media did not in any way help in the Arab Spring. According to his argument, there was a transition from an authoritarian to a more liberal system of government in the Middle-East, which the author termed a “process in democratization.”²³ Furthermore, he argues that Twitter and Facebook played a meager role, while traditional media such as TV played a decisive role in the protest. Additionally, the author states that the difficult economic conditions in Egypt, especially the high rate of unemployment among the youth, were the key factors which generated so many labor strikes in Egypt since 2010.²⁴ However, this argument fails to demonstrate how such large numbers of people came together or how they were informed of and encouraged to participate in the strikes. Collective action is crucial in social protests, and this action can only be achieved through active communication among the different groups in the crowds.

Sean Aday, Henry Farrell, Marc Lynch, John Sides, and Dean Freelon also find little evidence that the new media play a direct role in organizing protest, but find rather that they function primarily to inform international audiences and mainstream media. The authors use a qualitative approach to study the role of new media such as Twitter in the Arab Spring, but conclude that there are deep methodological challenges to demonstrating a causal relationship between new media and social protests.²⁵ Furthermore, Emma Tonkin, Heather Pfeiffer, and Greg Tourte reaffirm the difficulty of laying blame on social media during the London riots, mostly because of the challenges

22. Juan Raúl Escobar, “The Revolution Will Not be Tweeted” (Master’s thesis, Institute of Social Studies, The Hague, Netherlands, 2009): 21.

23. Jon B. Alterman, “The Revolution Will Not be Tweeted,” in *Refocusing on Egypt*, Vol. 34 (Taylor & Francis, 2011): 104.

24. *Ibid.*, 108.

25. Aday et al., “New Media and Conflict After the Arab Spring,” 174

of looking at the data, and the difficulties of assessing the actual influence of a particular message.²⁶ Similarly, Alex Burns and Ben Eltham studied the roles of social media during Iran's 2009 election crisis and found that Twitter was unable to bring revolutionary change in regime. Most of the Twitter users were being targeted and brutalized by the paramilitary forces, and some were even killed.²⁷ In addition, Navid Hassanpour argues that it was the disruption of the communication network by the Egyptian authorities that infuriated the population and further accelerated the mobilization of protests. Moreover, the information vacuum caused by cutting the Internet was filled by other means of communication—radio, mobile phones, and SMS.²⁸

In contrast, some scholars believe that social media is an effective tool and it is used by many organizations to achieve their objectives. According to these researchers, social media can be an effective vehicle for organizing protests, as it reinforces democratic values and allows people to share vital information about government activities. Thus, users or even activists perform the role of a watchdog for the population through social media. Furthermore, real-time news spreads at great speed between networks, linking people and organizations in the virtual world more easily. For instance, Philip Howard and Muzammil Hussain argue that during the Arab Spring, social media such as Facebook and Twitter made the key difference in organizing such massive and sustained demonstrations. According to the authors, "it was not oppression and police brutality that were the catalyst, which ignited popular protest, but the diffusion of news about police beating Mohamed Bouazizi or Khaled Said by networks of families, friends, and then strangers."²⁹ Moreover, when Dana Fisher, Kevein Stanley, David Berman, and Gina Neff conducted a survey and collected data from five protest events in three

26. Emma Tonkin, Heather D. Pfeiffer and Greg Tourte, "Twitter, Information Sharing and the London Riots?" *Bulletin of the American Society for Information Science and Technology* 38, no. 2 (2012): 55.

27. Alex Burns and Ben Eltham, "Twitter Free Iran: An Evaluation of Twitter's Role in Public Diplomacy and Information Operations in Iran's 2009 Election Crisis" (Communications Policy & Research Forum, University of Technology, Sydney, Nov 19–20, 2009).

28. Navid Hassanpour, "Media Disruption Exacerbates Revolutionary Unrest: Evidence from Mubarak's Natural Experiment," *APSA 2011 Annual Meeting Paper* (2011): 2.

29. Howard and Hussain, "The Role of Digital Media," 43.

countries, they found that 29 percent of the individuals participating in the protest learnt of it through their social network.³⁰

To develop a more thorough understanding of how this process operates, this thesis will draw on the tenets of social movement theory to explain crowd behavior and collective action. Individual and collective behaviors in social protests are complex. Pamela E. Oliver defines social movements as “large and complex sets of collective events oriented toward some general social change.”³¹ Crowds in social protests can be divided into three groups: bystanders, active participants, and the hard core. Aldon Morris and Carol Mueller argue that some people participate in protests because they care about certain issues and they are ready to incur some personal costs in order to achieve their goals.³² Proponents of social movement theory argue that while individuals in crowds are sometimes engaged in purely individual actions, and they may also be engaging in fundamentally collective behaviors.³³ This perspective claims that movements form because of the social grievances existing in society.

In contrast, resource mobilization theory claims that grievances are secondary factors for social movements to form, and that the most important element is the availability of resources, especially cadres, and organizing facilities that support the social movement.³⁴ Along these lines, J. Craig Jenkins argues that “mobilization is a process by which a group secures collective control over the resources needed for collective action.”³⁵ Resources such as money, recruits, and means of communication are crucial to sustaining a social movement. Moreover, the author argues that the ability to mobilize huge crowds largely depends on a group sharing distinct identities, strong social

30. Dana R. Fisher et al., “How do Organizations Matter? Mobilization and Support for Participants at Five Globalization Protests,” *Social Problems* 52, no. 1 (2005): 112.

31. Pamela E. Oliver, “Bringing the Crowd Back in: The Nonorganizational Elements of Social Movements,” *Research in Social Movements, Conflict and Change* 11, no. 1989 (1989): 4.

32. Aldon D. Morris and Carol McClurg Mueller, *Frontiers in Social Movement Theory* (Yale University Press, 1992): 252.

33. Clark McPhail and Ronald T. Wohlstein, “Individual and Collective Behaviors within Gatherings, Demonstrations, and Riots,” *Annual Review of Sociology* (1983): 580.

34. J. Craig Jenkins, “Resource Mobilization Theory and the Study of Social Movements,” *Annual Review of Sociology* 9 (1983): 530.

35. Ibid., 532.

ties, and solid preexisting group organization.³⁶ It thus seems possible that media technologies within the social movement could act as a locomotive that connects individuals, and thereby empowers the mobilization of larger and more frequent protest activities.

C. INTERNET PENETRATION IN AFRICA

Africa has known remarkable growth in digital communication as displayed by the graph in Figure 1. This growth has had a transformative effect on the way business is conducted. According to the Pew Research Global Attitudes Project “Emerging Nations Embrace Internet, Mobile Technology,” it is estimated that 77 percent of Internet users in Africa are present on social media.³⁷ Poor infrastructure for landline telephones has forced many users to shift to mobile technology and the cell phone market is skyrocketing. In addition, the use of smartphones is gaining a strong foothold.³⁸ In many ways the spread of Internet access appear to have a beneficial effect on the African economic and political sphere. Many scholars argue that the use of ICT, in particular social media, acts as a vanguard and monitor for the whole range of government actions, which ultimately reinforces transparency and acts as an anti-corruption tool for societies.³⁹

36. Ibid., 538.

37. Pew Research Center, *Emerging Nations Embrace Internet, Mobile Technology: Cell Phones nearly Ubiquitous in Many Countries* Global Attitudes Project, 2014.

38. Ibid., 4.

39. John C. Bertot, Paul T. Jaeger and Justin M. Grimes, “Using ICTs to Create a Culture of Transparency: E-Government and Social Media as Openness and Anti-Corruption Tools for Societies,” *Government Information Quarterly* 27, no. 3 (2010): 269.

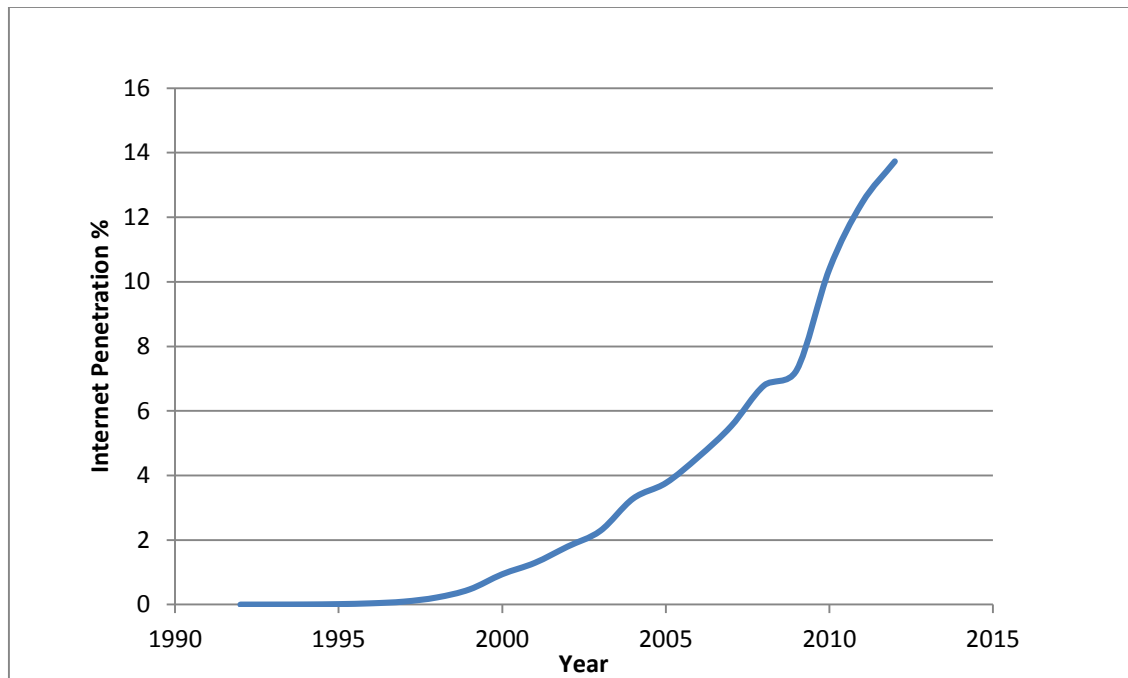


Figure 1. Percentage of individuals using the Internet in Africa.

While social media has facilitated and improved economic activity and promoted e-government in Africa, the ICT revolution has additionally promoted an upsurge in many illegal activities. Pierskalla and Hollenbach argue that increased cell phone use in Africa has helped to address the problem of coordination for violent collective action, and show that the rise in cell phone use has increased the probability of violent conflict in Africa.⁴⁰

The Arab Spring has reinvigorated the role of social media as a facilitator to organize social protests, and has drawn the attention of many scholars and researchers. As Malcom Gladwell illustrates in his 2010 study, social media itself cannot create a revolution, because users in the network have weak ties. Instead, he argues it is the degree of personal connection between activists, which are the strong ties that matters to generate committed collective action.⁴¹ In contrast, Alexandra Segerberg and W.

40. Pierskalla and Florian M. Hollenbach., "Technology and Collective Action: The Effect of Cell Phone Coverage on Political Violence in Africa," 220.

41. Malcolm Gladwell, "Small Change: Why the Revolution Will Not be Tweeted," *The New Yorker*, 2010, 5.

Lance Bennett shows analytical weaknesses in Malcom Gladwell's study and strongly contend that social media, in particular Twitter act as networking agents in the context in which it operates, and facilitates coherence, sustainability, and effective associated collection, thus are indicative of developing collective action.⁴² Social media, in fact, addresses the coordination problems faced by activists and organizers who rely heavily on collective action within the population. Thus, crowds are much stronger and ready to face the superior power of the state. Additionally, social media such as Twitter stream has an effect of connecting various networks, actors, and locations in a protest space, which magnifies the size of the audience focused on a particular social protest.⁴³

42. Alexandra Segerberg and W. Lance Bennett, "Social Media and the Organization of Collective Action: Using Twitter to Explore the Ecologies of Two Climate Change Protests," *Communication Review* 14, no. 3 (2011): 201.

43. Ibid., 202.

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III. METHODOLOGY

The previous chapter explores the theoretical foundation; this chapter investigates the empirical data which constitutes a key part of this thesis. This data enables us to test the hypothesis; increased Internet use increases social protests in Africa. The African continent provides a rich agglomeration of spatial and temporal variation that does not exist in other parts of the world, in addition to representing a major hotspot of ethnic violence and political conflict. In order to test this hypothesis I gathered cross-sectional time-series data from existing databases covering a period of 20 years, between 1992 and 2012. This data is drawn from 54 countries in Africa as listed in the appendix. This temporal period was chosen to cover the global development of Internet technology and the rapid expansion of social media, while also providing a sizable data sample for regression analysis.

A. INDEPENDENT VARIABLE

At this stage, it is also important to identify the variables for our analysis. The key independent variable will be the percentage of individuals within a country using the Internet, proportionate to the total population. This data is drawn from the International Telecommunication Union (ITU), which maintains datasets for the whole ICT sector from 193 countries and over 700 private sectors and academic institutions.⁴⁴

B. DEPENDENT VARIABLE

The main dependent variable effects the frequency of social protests and riots occurring in these countries, using data collected from the Social Conflict in Africa Database, which records social conflict events from 1990 to 2012.⁴⁵ For our analysis the total number of protests that have occurred in a country is counted on a yearly basis. The

44. "ITU: Committed to Connecting the World." ITU, <http://www.itu.int/en/Pages/default.aspx>. ITU collects ICT statistics for 200 economies and over 100 indicators; ICT statistics, including on broadband, Internet use, mobile-cellular and mobile-broadband networks

45. Cullen S. Hendrix and Idean Salehyan, "Social Conflict in Africa Database," Robert S. Strauss Center for International Security and Law, <https://www.strausscenter.org/scad.html>.

Social Conflict Database provides the start dates and end dates of a protest. Although a protest can last for more than one day, in our counting system it is coded as one protest.

C. CONTROL VARIABLES

Additionally, it is important to identify the control variables that must be included in the analysis to account for other factors that may affect the frequency of social protests. Scholars have emphasized that structural factors may contribute to the occurrence of internal conflicts and regime stability. Paul Collier, Anke Hoeffler, and Dominic Rohner demonstrate the socioeconomic factors, such as poverty, inequalities, and ethnic fractionalization that motivate parties engaging in conflicts. Their findings are significant to consider in regard to economic variables: the level, growth, and structure of income are key determinants affecting the propensity of individuals to engage in violence.⁴⁶ The control variables that have been identified are: *wealth as captured by GDP Per capita Income, Inflation rates, Economic Growth, Population, Unemployment, Regime Types, and Ethnic Diversity*. The GDP Per capita income is predicted to negatively affect the likelihood of protests. Similarly, Economic Growth is included in the model, as it is commonly believed that conditions of strong economic growth are less likely to motivate people to protest against a regime. Scholars have also argued that a larger population is more difficult for the state to control and increases the potential for protests. Similarly, James Fearon and David Laitin show that “the estimated risk of civil war over the course of a decade is greater for a country with a larger population.”⁴⁷ Along the same lines, in a World Bank Policy Research Working Paper, Patrick Barron, Kai Kaiser, and Menno Pradhan argue that there is a directly relationship between unemployment and local conflict in Indonesia.⁴⁸

Unemployment provides the opportunities for groups to participate in collective action and express their grievances toward the state. A high unemployment rate is

46. Paul Collier, Anke Hoeffler and Dominic Rohner, “Beyond Greed and Grievance: Feasibility and Civil War,” *Oxford Economic Papers* 61, no. 1 (2009): 20.

47. James D. Fearon and David D. Laitin, “Ethnicity, Insurgency, and Civil War,” *American Political Science Review* 97, no. 1 (2003), 75–90.: 85.

48. Patrick Barron, Kai Kaiser and Menno Pradhan, *Local Conflict in Indonesia: Measuring Incidence and Identifying Patterns*, Policy Research Working Paper 3384 (The World Bank, August 2004).

expected to generate more social conflict as opposed to a relatively low percentage of unemployed labor. These variables are each measured on a country-year basis using data from the World Bank.⁴⁹ The intent in including these variables is to maximize the reliability of the model, while minimizing the biases that could arise from spurious correlations.

In addition to economic variables, it is vital to include social and political indicators which arguably affect the possibility of onset of civil unrest. Many scholars argue that the type of regime may have a large effect on the possibility for protests. Edward Muller and Erich Weede show that “under a totally repressive regime, opportunities for collective action will be low and the probability for success will be low. In contrast, in a strong democracy the possibilities for collective action will be high and the cost for peaceful collective action is much lower than violence.”⁵⁰ To capture this possibility, the Polity IV data set is used to measure the level democracy, on a scale that ranges from -10 (strongly autocratic) to +10 (strongly democratic).⁵¹ A strong democracy is expected to decrease the likelihood of protest.

For ethnic diversity the commonly used ethno linguistic fractionalization (ELF) index based data is used to “measure the probability that two randomly drawn individuals in a country are from different ethno linguistic groups.”⁵² Scholars studying onset of civil war and its relationship with ethnic linguistic fractionalization generally argue that a society with a high ethnic fractionalization ratio may have a direct relationship with the onset of civil war. Based on a similar effort, Randall J. Blimes shows in his model that ethnic fractionalization has an indirect effect on civil war; a society with low GDP per capita and high ethnic fractionalization has a significant and positive effect on the

49. World Bank, “The World Bank: Data,” <http://data.worldbank.org/country>.

50. Edward N. Muller and Erich Weede, “Cross-National Variation in Political Violence A Rational Action Approach,” *Journal of Conflict Resolution* 34, no. 4 (1990): 646.

51. Monty G. Marshall, Keith Jaggers and Tedd R. Gurr, “Polity IV Project: Political Regime Characteristics and Transitions, 1800–2012,” Polity IV, <http://www.systemicpeace.org/polity/polity4x.htm>.

The Polity IV dataset covers all major, independent states in the global system over the period 1800–2013 (i.e., states with a total population of 500,000 or more in the most recent year; currently 167 countries).

52. Alberto Alesina et al., “Fractionalization,” *Journal of Economic Growth* 8, no. 2 (2003), 155–194.

probability of civil war.⁵³ We should therefore expect that a high ELF ratio may also contribute to the outbreak of social protests.

Finally, to address the possibility of spurious correlations due to additional unmeasured factors, I also include dummy variables (i.e. ‘fixed-effects’), for each year and each geographic region. Moreover, because our dependent variable is measured as a ‘count’ variable, which records the total number of protests by country-year, all results reported below were generated using quasi-Poisson models.⁵⁴

53. Randall J. Blimes, “The Indirect Effect of Ethnic Heterogeneity on the Likelihood of Civil War Onset,” *Journal of Conflict Resolution* 50, no. 4 (2006): 544.

54. John A. Nelder and RJ Baker, *Generalized Linear Models* (Wiley Online Library, 1972). “Generalized linear models are extensions of traditional regression models that allow the mean to depend on the explanatory variables through a link function, and the response variable to be any member of a set of distributions called the exponential family (e.g., Normal, Poisson, Binomial).” See <http://www.stat.columbia.edu/~martin/W2024/R11.pdf>.

IV. ANALYSIS AND RESULTS

Figure 2 shows the total number of protests in Africa from 1992 to 2012. The blue line shows the aggregate number of protests, and the broken red line indicates the total number of protests in all African countries from 1992 to 2012 when Tunisia and Egypt are controlled for, there was a lot of protest in the rest of Africa.

Table 1 shows the results of the multivariate regression, which investigates the relationship between increased Internet penetration in Africa and the volume of social protests.

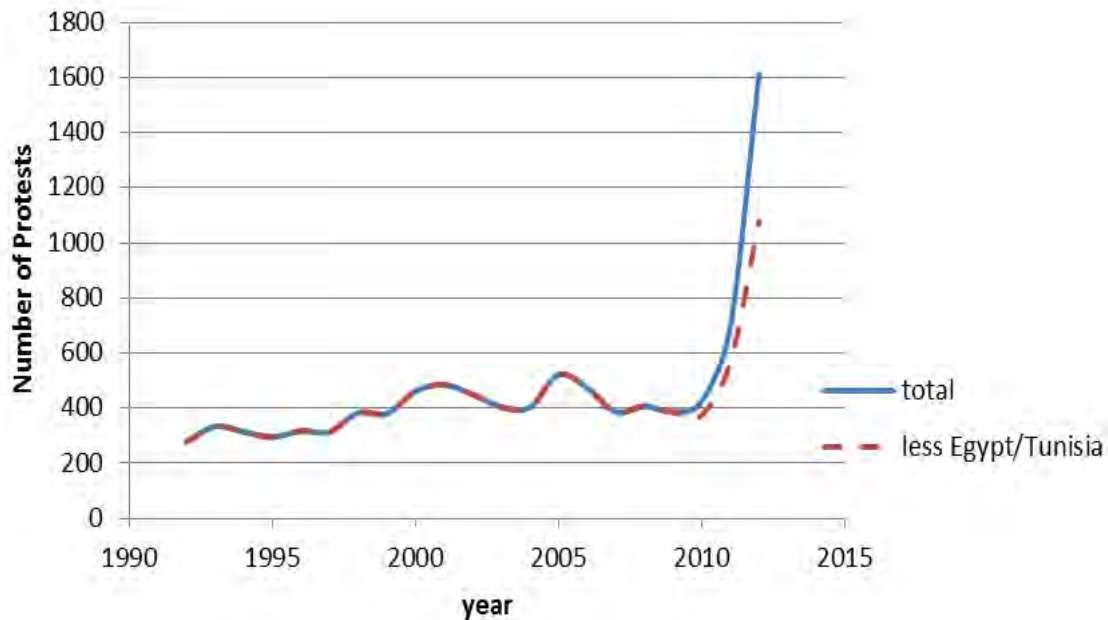


Figure 2. Number of protests in Africa, 1992–2012.

	<i>Dependent variable:</i>			
	Number of protests			
	(1)	(2)	(3)	(4)
Internet	0.039*** (0.004)	0.060*** (0.004)	0.059*** (0.006)	0.092*** (0.008)
Internet*GDP Per capita				-0.014*** (0.003)
GDP Per capita	-0.068** (0.033)	-0.088** (0.038)	-0.162*** (0.045)	-0.026 (0.048)
Inflation	0.0003 (0.0002)	0.0002 (0.0003)	0.0004 (0.0003)	0.0004 (0.0003)
GDP growth	-0.059*** (0.008)	-0.040*** (0.011)	-0.024** (0.011)	-0.027*** (0.010)
Ethnic division		0.732** (0.292)	1.484*** (0.294)	1.366*** (0.289)
Polity IV		0.015 (0.012)	0.022* (0.013)	0.020 (0.013)
Unemployment	0.026*** (0.007)			
Population	0.0002*** (0.00001)			
as.factor(region)Middle Africa			-0.279 (0.244)	-0.322 (0.238)
as.factor(region)Northern Africa			0.919*** (0.223)	0.721*** (0.223)
as.factor(region)Southern Africa			0.924*** (0.231)	0.822*** (0.230)
as.factor(region)Western Africa			0.287** (0.140)	0.281** (0.135)
Yearly Fixed Effect			Yes	Yes
Constant	1.665*** (0.096)	1.767*** (0.225)	2.139*** (0.535)	1.927*** (0.525)
Observations	726	707	694	694

Note: Standard errors in parentheses

* p<0.1; ** p<0.05; *** p<0.01

Table 1. Regression results.

Model 1 is the baseline specification; it includes the economic control variables: GDP growth, Inflation, GDP per capita, population, and Unemployment. Model 2 adds the social and political variables that are likely to affect protests: the types of regime in the Polity IV data set and the level of ethnic fractionalization. In addition to the economic and social and political control variables, Model 3 includes fixed effect dummy variables for each year and region to account for the possibility omitted variable bias. Finally, Model 4 adds a multivariate interaction term, Internet * GDP Per capita, to investigate the possibility that economic forces condition the impact on Internet penetration, as a variable to remove the condition causality between the two variables.

The key independent variable in the models seems to behave as predicted. The Internet's effect is statistically significant in relation to the onset of protest. In Model 1, the coefficient for Internet is strongly positive and significant, giving credence to our main hypothesis. In addition, the negative relationships observed for economic variables, GDP growth and GDP Per capita, with regard to the outbreak of protests indicate that a higher economic growth along with an increase in the GDP per capita may reduce the probability of social conflict. However, inflation does not seem to be statistically significant in spurring the population to protest. Additionally, in Model 2, when we add the social and political variables—ethnic fractionalization and democracy—the coefficient for Internet remains positive and statistically significant. The type of regime in Africa—autocratic or democratic—generates only weakly significant effect. However, the coefficient for ethnic fractionalization is positive and statistically significant, indicating that a society with a high level of ethnic fractionalization is more prone to instability than a unified society. The relationship between Internet diffusion and the likelihood of protests for Model 2 can be visualized by plotting the predicted probability of social protest as a function of the level of Internet penetration, while holding all other variables constant at their means.

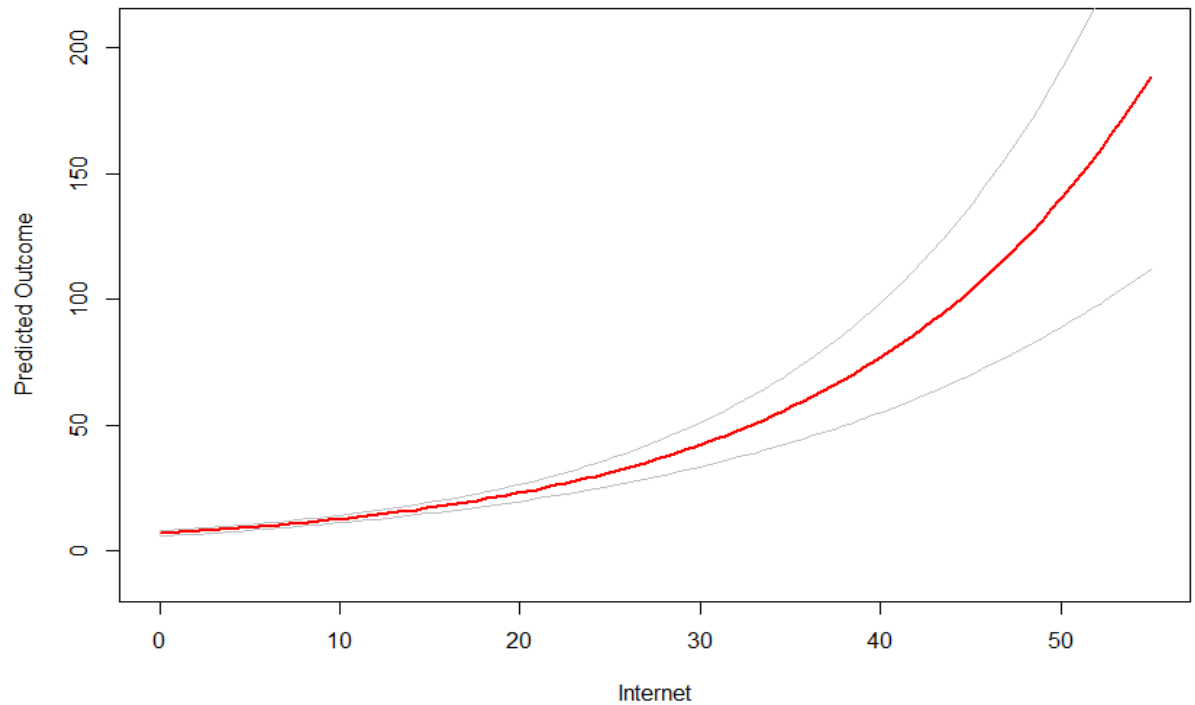


Figure 3. Probability of Social Protests as a function of economic variables

The red line shows predicted probability of protests based on Model two and the two grey lines represent the standard errors from Model 2. As depicted by the plot, it is estimated that if the level of Internet penetration in Africa increases while holding the level of the economic, political and social variables constant, we expect to see an upward trend in the level of protests.

Model 3 adds the geographic regions and years as dummy variables. Based on the findings, we can that our key independent variable is unaffected by these additions, indicating that the results are unlikely to have been driven by unmeasured differences between years or regions.

To examine the possibility of conditional effects, Model 4 includes a multiplicative interaction term, Internet * per capita GDP combined with the economic, social, and political controls from the previous models. The significant negative coefficient for the interaction terms indicates that when wealth is low, Internet has a

strong and positive effect on protests, but as wealth gets higher the conflict-promoting effects of Internet decreases. Given that all the other variables remain constant, if we estimate the predicted quantities of social protests occurring based on different levels of Internet and GDP Per capita, the result is graphically displayed in Figure 4. Note the green and red lines represent the two levels of income per capita; one being the lowest in Africa and the other the highest- while the two grey lines depict the standard errors derived from Model 4. The results indicate that states able to provide a high GDP per capita to their citizens have less to worry about in terms of civil disorders overall, and experience less conflict promotion from Internet penetration.

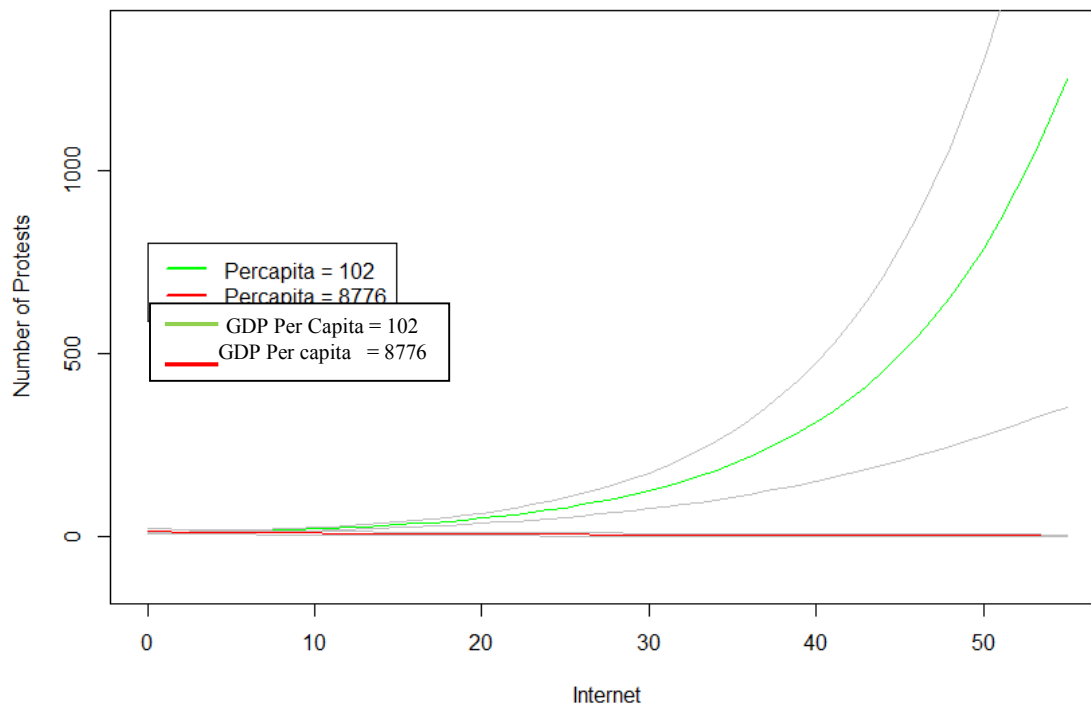


Figure 4. Probability of outbreak of social protests.

One would also expect the type of regime to be an important factor determining the outbreak of civil protest. Human rights abuses and political grievances are the many facets of dictatorship that ruin the daily lives of citizens. The results in the analysis, however, contradict this argument. Social protests are frequent in democracies as well as

in autocracies; the results in the models are positive but statistically insignificant. Hence, while it is usually believed that dictators or authoritarian rulers will always empower their military to curb down potential uprisings, the findings presented here do not support such a claim.

The estimates for ethnic fractionalization in Model 3 are positive and statistically significant. Ethnically dominant groups play key roles in civil war, as Benjamin Smith shows in a study of oil wealth, high levels of ethnic diversity increases the risk of civil war, especially in oil-rich countries.⁵⁵ By contrast, James Fearon and David Laitin argue that ethnic fractionalization barely has any effect on civil war. Rather, they claim, it is poverty, a large population, and instability that favor the outbreak of civil war.⁵⁶ Interestingly, our findings seem to echo the view that ethnic fractionalization matters greatly for the outbreak of civil unrest.

Surprisingly, in a unified society the possibility for social protest is higher than in a society with high ethnic fractionalization. This finding seems to give credence to Model 3, where we note that the Northern African Region coefficient is .91 percent and statistically significant, and this region is composed of an Arab majority group. Social identity and group solidarity favor collective action, and these ingredients matter in social protest. A unified society seems to facilitate the birth of collective action.

55. Benjamin Smith, "Oil Wealth and Regime Survival in the Developing World, 1960–1999," *American Journal of Political Science* 48, no. 2 (2004): 240.

56. Fearon and Laitin, "Ethnicity, Insurgency, and Civil War," 88.

V. CONCLUSION

This thesis has investigated the effects of the increased percentage of individuals using the Internet in Africa upon the number of social protests, and the findings are important in many aspects. First, the results in the analysis give credence to our hypothesis that Internet usage has a direct relationship with social protest. Second, the results show that economic characteristics such as the level of income, unemployment, and growth are key determinants that promote stability and are also predictors of the risk of civil unrest. The results thus indicate that, while grievances are the underlying reason for people to rebel against the state, the availability of resources is crucial to triggering mass mobilization.

New technology allows mobile Internet users to interact more and more through the social media platforms; this digital growth rate will create a new dynamic in the socio-political environment. The digital technology revolution reduces information asymmetry in isolated corners, and also improves collective action among protestors throughout cities, countries, and regions. More users in Africa are joining social media sites, and as the future seems promising, major private companies are investing and expanding the communications network. This growth will undeniably improve many aspects of African life and it will also enable new conflicts beyond state control.

Recent studies have shown interest in looking beyond social protest at the use of social media in supporting special operations in revolutionary environments.⁵⁷ Social media are powerful tools that can shape and influence the behavior of a population from outside the targeted country. New conflicts emerge as non-state actors rely heavily on social media to run their propaganda campaigns, recruit new followers, and instigate supporters to rise up against the state. Many terrorist groups dissipate their venomous slogans through the new social media platforms. Unfortunately, technology has created new avenues for the bad guys to leverage and exploit.

57. Kirk A. Duncan, "Assessing the use of Social Media in a Revolutionary Environment" (Master's thesis, Naval Postgraduate School), 1–175.

In this research we provided evidence that when certain economic conditions exist- low income, low economic growth, and unemployment - Internet use has a direct relationship with the likelihood of social protest. These results may be of interest for policy makers. For instance, instead of focusing on hard power to quell disorder, states should rely on all forms of communication technology as a tool to expand their control and influence the population in terms of welcoming suggestions, acknowledging citizens' value and achievement, monitoring public opinion, and responding to concerns. The expansion of Internet accessibility to Africa will most likely generate positive economic activity in the long run, but it will also create a more connected environment, which is favorable for both the states and other actors in the arena. The spread of democracy, fighting corruption, and tolerance for ethnic minorities are measures that are likely to reduce conflicts, but they should be accompanied by policies that increase the level of income of citizens. The prevalence of social conflicts in Africa is indicative of the grievances that exist in society. The Internet is a valuable tool that has become the eye and ears of the weak, corrupt governments that continue to use harsh measures against its their populations are most likely to face more uprisings.

APPENDIX. COUNTRY LIST

The following countries were used as data sources for this study:

1. Algeria
2. Angola
3. Benin
4. Botswana
5. Burkina Faso
6. Burundi
7. Cameroon
8. Cape Verde
9. Central African
10. Republic Chad
11. Comoros
12. Congo
13. Congo Democratic
14. Ivory Coast
15. Djibouti
16. Egypt
17. Equatorial Guinea
18. Eritrea
19. Ethiopia
20. Gabon
21. Gambia
22. Ghana
23. Guinea
24. Guinea-Bissau
25. Kenya
26. Lesotho
27. Liberia
28. Libya
29. Madagascar
30. Malawi
31. Mali
32. Mauritania
33. Mauritius
34. Morocco
35. Mozambique
36. Namibia
37. Niger
38. Nigeria
39. Rwanda
40. Sahara

41. St. Helena
42. St. Tome & Principe
43. Senegal
44. Sierra Leona
45. Somalia
46. South Africa
47. Sudan
48. Swaziland
49. Tanzania
50. Togo
51. Tunisia
52. Uganda
53. Zambia
54. Zimbabwe

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